

# What's the Big Idea about Water? Living Things & Ecosystems Need Water

This text is provided courtesy of OLogy, the American Museum of Natural History's website for kids.

## All Living Things Need Water

All living things, from tiny cyanobacteria to giant blue whales, need water to survive. Without water, life as we know it would not exist. And life exists wherever there is water.

All organisms, like animals and plants, use water: salty or fresh, hot or cold, plenty of water or almost no water at all. They are adapted to all kinds of habitats, from sizzling deserts to the freezing, pitch-dark ocean floor. The first living things appeared in the ocean nearly four billion years ago. Some, like our ancestors, adapted to life on land. Humans have figured out how to survive in swamps, deserts, and all kinds of habitats in between.

The ocean is still home to more kinds of life than anywhere else on the planet.

## All Ecosystems Need Water

How much water is there on an island or a mountaintop? The answer determines what lives there, and how many of them.

An ecosystem is a community of living things, or species. Some ecosystems are very wet and others very dry, some with fresh water and others with salty water. Some ecosystems, like coral reefs, support lots of species, and others, like the dry Antarctic valleys, support very few.



Photo Credit: NOAA (top); AMNH / R. Mickens (bottom)

# What's the Big Idea about Water? Protecting Our Water

This text is provided courtesy of OLogy, the American Museum of Natural History's website for kids.

## Humans Put Water to Work

You've probably had a drink of water or washed your hands today. But people use water for so many other purposes, like

cleaning stuff, transportation, and generating hydroelectric power. Just as nothing can live without water, not much can be made without it, from cotton candy to cotton T-shirts.

Because water is so useful, most people live along coastlines, rivers, and lakes. Where fresh water is limited, people have used many technologies—like wells, dams, and canals—to store and move it.

Sometimes these technologies damage habitats. Other species have to compete with humans for water. This may help explain why so many creatures that live in fresh water are endangered.

We need to be smarter and more careful about how we use water in order to make sure that there's enough for all life on Earth.

## We Need to Take Care of the Water Planet

Water is precious. We can't get more. How do we make sure there is enough clean, fresh water to share with all living things?

Remember that every drop we use—or waste—continues through the water cycle. Stuff we put down the drain ends up in

someone—or something—else's water. Chemicals like fertilizers and pesticides pollute lakes and oceans, harming the organisms that live in them.



Photo Credit: BPA

We need to protect swamps and riverbanks. These wetlands clean water naturally and provide important habitats for many wild birds, fish, and other species. People are working to restore damaged or lost wetlands.

We can use water more wisely. For example, it takes a lot of energy to produce bottled water, and not everyone recycles the plastic bottles. We can use less, too, in simple ways like drinking tap water and turning off the faucet while we brush our teeth.

Together, we can protect fresh water now and for the future.



Photo Credit: USDA (top); R. Friedman (bottom)

# What's the Big Idea about Water? Water's Impact on the Earth

By American Museum of Natural History

This text is provided courtesy of OLogy, the American Museum of Natural History's website for kids.

## All Water on Earth Is Linked in a Vast Cycle

Earth's water is always in motion. It moves inside the planet, across its surface, and in the atmosphere above.



Photo Credit: Coombs / USGS

Water in lakes, rivers, and oceans turns into vapor and moves into the air through evaporation. Plants draw water from the soil and return it to the air. Volcanoes release water vapor that was locked deep inside rocks. All that water rises and falls back to Earth as rain or snow. This water cycle repeats over and over.

Can you imagine how far the water in your shower has traveled? (Remember, it's been on Earth for over 4 billion years!) Where do you think it will go next?

## Water and Climate Are Connected in Many Ways

Climate is the average weather in a place, over a long time. Water, in its various forms (liquid, vapor, and ice), plays an important role in controlling climate.

At the North and South poles, sea ice forms and melts with the seasons. When the ice melts, cold water sinks to the bottom of the ocean and circulates around the globe. Ocean currents also move warm water around the earth. When the warm water evaporates, it causes the atmosphere above it to warm. Water vapor, and other greenhouse gases in the atmosphere, hold in the sun's heat like a blanket. Together, these processes keep our planet from getting too hot or too cold.

## Water Shapes Our Planet

Water runs easily through your fingers. It may not feel powerful. But lots of water, acting over time, shapes the world around us.

Falling and running water erodes rocks, creating giant canyons. Rivers and streams move dirt that forms new land.

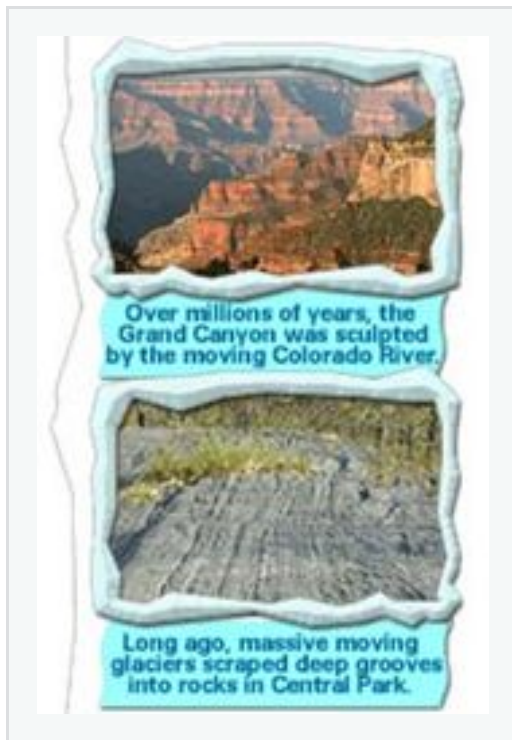


Photo Credit: NPS Central Park (top); AMNH / T. Gaud (bottom)

Glaciers scrape across the ground, carving valleys and dragging debris. Tides and storms claw away at coastlines. And water locked in Earth's crust actually has a role in moving the giant continents below our feet.



Photo Credit: NSF (top); V. Ryzin (bottom)



# What's the Big Idea about Water?: The Amazing Water Molecule

By American Museum of Natural History

This text is provided courtesy of OLogy, the American Museum of Natural History's website for kids.

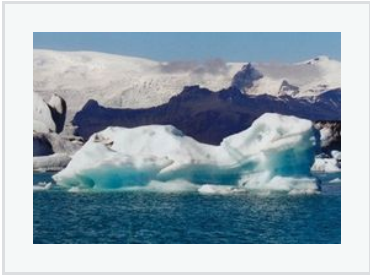


Image credits: courtesy of AMNH / C. Chesek; Eleanor Sterling: courtesy of AMNH; Eleanor Sterling: courtesy of AMNH.

*There is nothing in the world like water. Without it, our world would be a very different place. Water covers over two-thirds of Earth and makes all life possible. It shapes our planet's surface, carving canyons and moving continents. It works with the Sun's energy to control our climate. And it is essential to our survival, as well as for food, transportation, sanitation, and even power. We need to conserve and protect this precious resource.*

Water may not seem special. It's clear. It has no taste. It doesn't smell like anything. But if it couldn't do the things it does, life on Earth would not exist.

Water is a tiny molecule. It consists of three atoms: two of hydrogen and one of oxygen. Water molecules cling to each other because of a force called hydrogen bonding. It's the reason why water can do amazing things.

Water is a shape-shifter. It exists in three states on Earth: liquid, gas, and solid:

- Liquid water is a jumbled bunch of water molecules. It comes out of our faucets, flows underground and in rivers and oceans, and forms clouds and fog in the air.
- When water molecules escape from liquid water and float into the air, they turn into an invisible gas called water vapor. The spaces between the molecules are much bigger than the molecules themselves.
- When water freezes into a solid, it does a strange thing: it floats! (Most other solids become denser and sink.) As ice forms, water molecules arrange themselves neatly in a crystal structure. The empty spaces between the molecules act as flotation devices—the way a life preserver holds you up.



Photo Credit:  
<https://www.flickr.com/photos/piper/70144228>



Image credits: courtesy of NASA;  
Rosamond Kinzler: AMNH.

*The Earth is our home. So far, it's the only place that we know of that has life. Everywhere you look on Earth there is life. This is possible because Earth has lots of water. It's also just the right distance from the Sun. Some people call Earth the "Goldilocks planet." It's not too hot (like Venus), and not too cold (like Mars), it's just right!*

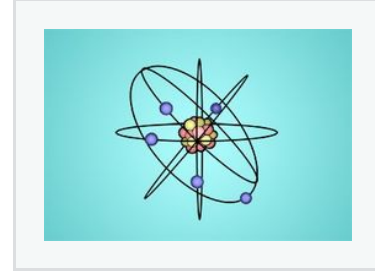
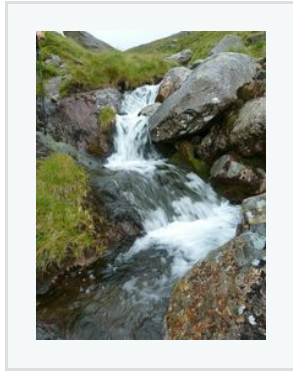


Image credits: Eric Hamilton.

*Look at all the things around you -- your computer, your finger, your desk, even the trees outside. They're all made of atoms. They're so tiny, it would take billions of them just to dot the "i" in the word "atomic"! Atoms are made of even smaller parts: a central nucleus made of protons and neutrons, and electrons that circle around the atom in special patterns called orbitals.*

# Oceans, Rivers, and Lakes

By Linda Ruggieri



We live on a wet planet. In fact, most of the surface of Earth is covered with water.

*Oceans* are the largest bodies of water on Earth. A body of water is a part of Earth's surface covered with water. You probably know that ocean water is salty. Do you know why? It is mainly because rain brings salt from the land and into the ocean! Here is how that happens: Rain falls onto rocks. The rainwater breaks down salt and minerals from the rocks. The water mixes with the salt and minerals. Then it flows into the oceans.

Scientists have discovered two other sources of salty ocean water. Some salt comes from underwater volcanoes. Other salt spurts from heated vents on the ocean floor. Most ocean salt, however, starts on land.

*Lakes* are large bodies of water. They are surrounded by land. Lakes usually have fresh water, but some lakes have salt water. The Great Salt Lake in Utah is a saltwater lake. Lake water does not move from place to place.

*Rivers* are filled with fresh water that moves from one place to another. The water in rivers comes mostly from rain. Rivers usually flow into oceans.

*Streams* and *creeks* are also bodies of moving fresh water. They are smaller than rivers. Streams and creeks can come together and form larger streams or rivers.



# Tag--I'm It!

by W.M. Akers



"Tuesday. 12:45. Recess. The game is tag. The stakes are high. There is no time to waste," Ryan said this to himself under his breath, on the edge of the jungle gym where kids played tag.

A football fan, Ryan's favorite part of the game was the commentators. Their deep, serious voices made football seem like more than a game. They made it dramatic-like a gladiator fight from ancient Rome. Ryan thought gladiators were pretty cool.

When kids on his playground played tag, he pretended to be a commentator. In his deepest possible voice, he took the imagined audience through the ups and downs of the match.

"Around the corner comes Billy Watkins," he intoned. "Billy's having a strong season so far, and those who watch this sport closely think he might be about to step up to a higher level. If he fulfills his promise, his name could stand alongside the greats of the game-names like Shirley Tompkins and Judy Whitmore, Andy Tobin and George Francis."

As he came around the corner, though, Billy Watkins slipped in the mulch and fell on his face.

He rolled back and forth on the ground, whimpering. No one showed sympathy.

"On the other hand," Ryan said, "Billy may disappoint us all."

Ryan knew something about disappointment. He had time to play commentator because nobody really wanted him to play tag. He'd never understood why, but when he joined the game, nobody would chase him. If he did somehow manage to become "It," nobody would run. But he didn't try to play; if he just narrated the game, he wouldn't be left out. He was still playing tag—he was just playing it in a different way.

"Hey kid!" said a voice behind him, a freckle-faced girl with frizzy pigtails named Angela. A newcomer to the game, Ryan thought to himself. A rookie hungry for respect. A-

"Why aren't you playing the game?" she barked, interrupting his reverie.

"I'm playing."

"No you're not! You're just standing over here being weird."

"I'm providing commentary, for, uh..." Ryan tried to think of anything to say besides "for the folks at home." He couldn't. "For the folks at home."

"What folks?! Are you on the phone or something?"

"Just leave me alone."

"I can't!"

"Why not?"

"Because I'm 'It!' Why aren't you running? I'm 'It', and that means you're supposed to run." Ryan shrugged. She poked him in the stomach. "Fine! Now you're 'It!'"

Ryan froze. He hadn't been 'It' for a long time. He didn't know what to do. The rest of the players stopped, too, and stared at him. If he moved, would they move too? Or would they stand there, waiting for him to quit embarrassing himself and get off the playground?

"Uh, weirdo!" shouted Angela. "This isn't freeze tag. Start running!"

So he ran the only way he knew how: with narration.

"Heart pounding in his ears, the frightened young commentator springs into action," he muttered. "He isn't sure how, he isn't sure why, but he knows one thing. He is going to get that

girl with the pigtails."

"Quit talking to yourself, and run like you mean it!" said Angela.

"He races up the slide, and across the footbridge, his target in his sights just a few feet away. The bridge's wooden slats clatter under his feet, sending shockwaves up his spine and into his jaw. Ryan is undaunted. This will be his hour. He reaches toward his foe, stretches out his fingers, and-ow!"

Ryan's hands clutched air. He fell face-forward, off the jungle gym, landing where Angela had been just a moment before. She had slid down the fireman's pole. He had not been so graceful.

"Dazed and confused, the young competitor tries to get his bearings. He looks up and sees the face of his opponent staring down at him, looking concerned and curious about why Ryan is still talking to himself."

"I think you might have broken your brain," Angela said.

"Ryan's brain is fine. Angela is the one who needs to worry."

"Why?"

Ryan leapt to his feet and poked Angela in the stomach.

"Because Angela is 'It!'"

Ryan turned and ran, a happy gladiator, battling at last.

# Wild About Birds

This text is provided courtesy of the National Audubon Society.



Polina Ponomareva/Fotolia

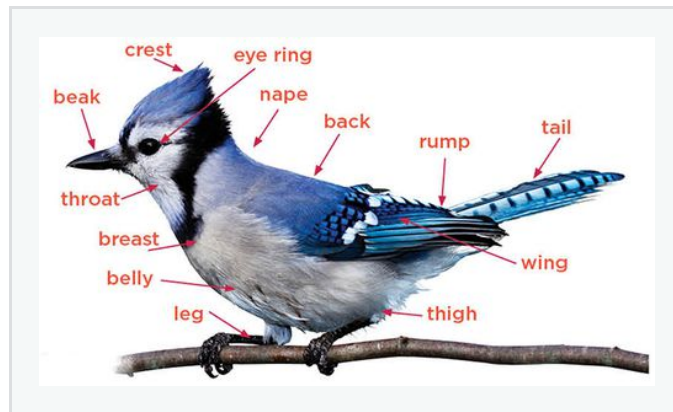
What do you think when you hear the word *wildlife*? Do you think of birds? If not, you should, because no matter where you are or what season you're in, birds are wildlife you can spot right outside your door.

Think about birds you've seen in your neighborhood. Do they all look alike? All birds have feathers, two legs, and a beak, of course, but once you really start noticing birds, you'll be amazed by their variety. You'll see birds of different sizes, shapes, and colors, and you'll hear them making many different sounds.

Scientists group birds into categories. Have you ever seen an owl, hawk, falcon, or eagle? Those are raptors, or birds of prey—birds that hunt other animals by seizing them with their powerful feet and sharp talons. Perching birds or songbirds are the birds you see flying over city streets, flitting through the trees, sitting in a row on a telephone line, or looking for insects or seeds in the grass. There are many types of birds: tiny hovering hummingbirds, strong-billed woodpeckers, waterfowl like ducks and geese with their webbed feet, long-legged wading birds, shorebirds, and even birds that don't fly, like penguins and ostriches. Some birds live in the same area all year round, and others are migratory, which means that they move between the place they raise their

young and another place where they spend the rest of the year.

There are about 10,500 species of birds in the world. Sometimes it's easy to identify a species, and sometimes it can be hard to tell two species apart because they look so much alike. Scientists and birdwatchers start the process of identifying a bird by paying attention to its field marks—characteristics like colors, markings, size, shape, and even sounds. Take a look at this Blue Jay and its field marks.



DepositPhotos

*Blue Jay field marks: Large songbird. Mostly bright blue on the crest, nape, and back, with a black band framing the face. White face, throat, breast, and belly. Black and white mixed with blue on wings and tail. Variety of sounds, from harsh calls to whistles and whirrs.*

A lot of people have fun trying to identify every kind of bird they see and keeping a list of all the different species they've spotted. Others just enjoy hearing birds singing in the trees and wondering what that song means. What about you? What do you enjoy about birds? [...]



# Who's That Bird?

This text is provided courtesy of the National Audubon Society.

Think about various birds you've seen. How are they alike and how are they different? You already know all birds have feathers. They all have two legs, two wings, and a beak, of course. But beyond those basics, birds come in an amazing variety of shapes, sizes, and colors, with an equally amazing variety of sounds and behaviors.

Each kind of bird is called a species. Females and males of each species are sometimes different colors, but basically birds of the same species have the same look and sound. It's fun to be able to look at or listen to a bird and say, "I know what that is!" Here are some bird identification tips for when you see a bird.

## Look for Field Marks

Field marks are the physical characteristics of a bird—its color, markings, size, and shape.

- Start with the basic color or colors. Crows are all black, for example, while American Goldfinches are mostly yellow with dark wings.
- Think about its shape. Does it have a crest—feathers that stand up on top of its head? Is its tail long or short?
- What does the beak look like? Is it long or short, thick or thin, straight or curved?
- How big is it? Does it seem small, medium-size, or big? Compare its size and shape to something you know, like your fist or a football, or a bird you're familiar with, like a crow or robin.

## Observe Behavior

Observing what a bird is doing and where it is can help you narrow down your choices.

- If it's swimming, there's a good chance it's a member of the duck family but no chance it's a cardinal.
- If it's clinging to the side of a tree, it could be a woodpecker but probably isn't a robin.

•If it's hopping in the grass, it might be some kind of sparrow or a robin but probably isn't any kind of hummingbird.

## **Listen for Calls and Songs**

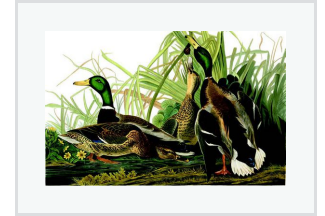
You can often hear a bird before you see it, and sometimes you will hear it but not see it at all. A bird's call or song can tell you what it is and even what it is doing. Birds make different sounds in different circumstances. Also, some birds are only active at night. Listening for birds like owls after it gets dark can be fun! If you become familiar with the kinds of birds likely to be in your area, you can begin to match up sounds with species.

# John James Audubon

This text is provided courtesy of the National Audubon Society.

## He was wild about birds!

John James Audubon was a naturalist and artist who traveled throughout the United States in the 1800s painting birds and other animals in the wilderness.



John James Audubon

*Mallards*

Audubon was born in Haiti in 1785 and spent his childhood in France. He came to the United States when he was 18. He did not speak English when he arrived, but he soon learned the language and, in 1812, became a U.S. citizen.

Today, throughout the United States, parks, streets, and buildings are named in honor of Audubon. What did he do to earn such respect?

Audubon was fascinated by nature and wildlife — especially by birds — even as a young boy. He combined his love of nature with his skills of drawing and painting. In America, he quickly fell in love with the vast and beautiful wild places he saw all around him.

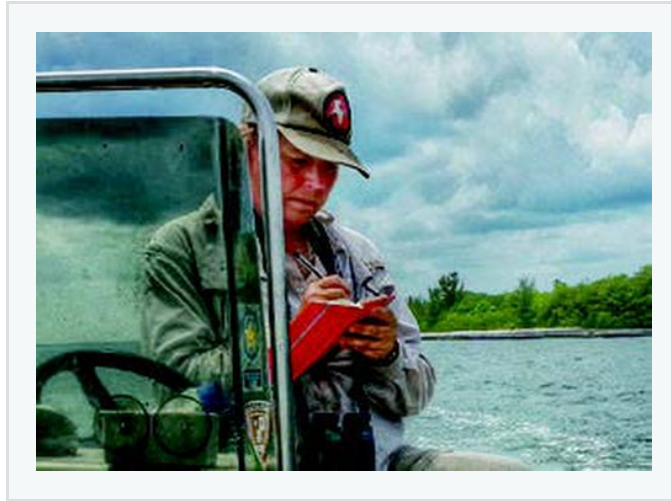
Audubon carried his paints and his gun into wild and unspoiled forests. He waded into swamps and drifted in small boats down rivers. He became a skillful woodsman and an expert rifleman. He faced many dangers in the frontier.

Wherever he went, Audubon looked for birds. Some of them were unknown to scientists. His travels let him observe North America's birds in all kinds of habitats.

Audubon believed birds were so exciting that he wanted to paint them as big as life. He insisted on using the biggest paper available to create the book of his bird paintings. The sheets measured a little more than three feet by two feet, and were called “double elephant sheets.” When it was published, Audubon's book, *The Birds of America*, was a great success. It had life-size paintings of 497 species of birds, more than half of the birds found in North America. Today copies are owned by many large museums and very wealthy people. It would cost you more than a million dollars to buy one! But there are copies in some museums that people can see, including the John J. Audubon Center in Audubon, Pennsylvania.

# Meet Ann Paul: Working for the Birds

This text is provided courtesy of the National Audubon Society.



Carol Cassels/Audubon

*Ann Paul*

## A scientist explains that birds need our help to protect their habitats.

You might say scientist Ann Paul is wading birds' best human friend, at least in and around Tampa Bay in Florida. Ann works on the waterways and islands of Audubon's Florida Coastal Islands Sanctuaries. Her job is to continue the work this sanctuary has been doing for more than 80 years: protecting nesting bird colonies so that they remain "islands of life."

"My job is to help people understand that we must let these birds have these islands as protected sanctuaries while the embryos in the eggs develop and the chicks grow up," she says. Every workday is different for Ann. "Some days we install 'no trespassing' signs to help boaters know where birds are nesting and to please stay off that island and let the birds successfully raise their young. Some days we go to the islands and count the nesting birds." The goal is to get an estimate of the population of each waterbird species in the region.

Large birds nest together in groups called colonies — also called rookeries — as a way of protecting their young. Ann explains how this helps them survive: "Large birds such as pelicans, herons, ibises, storks, gulls, terns, and skimmers can't hide in the trees or bushes to raise their young the

way mockingbirds or warblers do.” These birds and their nests are much bigger and it takes a long time for their young to be able to fly and find food for themselves. Their nests are pretty easy for predators to spot, but by choosing good nesting sites—mostly on small islands—the birds are able to keep their chicks safer. For example, raccoons like to eat birds’ eggs, but if the nests are on an island, raccoons swimming there risk being eaten by alligators.

Another part of Ann’s job is to take members of the public—especially those who make policies that could affect bird habitat—to the islands so they can see with their own eyes why it’s important to protect birds and their nesting sites.

“I have always been interested in animals and their wonderful adaptations,” says Ann. (Adaptations are characteristics developed over many generations that help an organism survive in its environment.) She studied biology and ecology in college, and now she gets to do what she loves for a living. “It is exciting to see birds making their nests, courting, catching fish or insects or whatever they are especially designed to eat.”

With more and more people moving to coastal areas, there are more threats to habitat for birds in the region. Protecting places like Audubon’s coastal sanctuaries is important so that these birds and their habitat will be part of our natural heritage in the future.



Lynne Pedlar

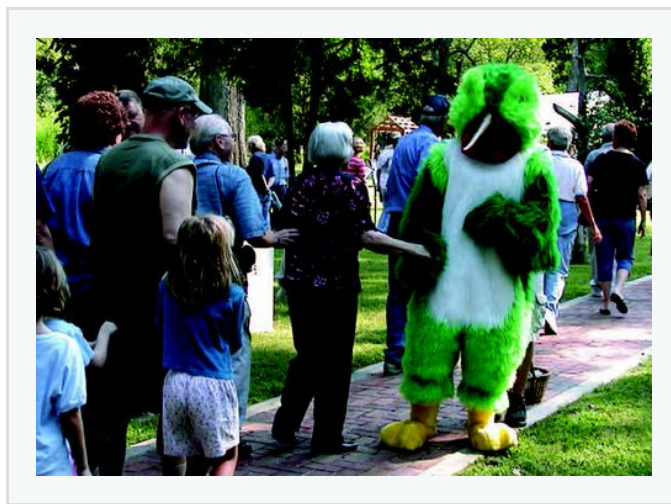
*Young people observe nesting birds at the Venice Area Audubon Society Rookery, Venice, Florida.*



# They Love Hummers

This text is provided courtesy of the National Audubon Society.

Plants in a pollinator garden offer nectar to hummingbirds as well as bees, butterflies, and other pollinators. The Rio Salado Audubon Center in Phoenix, Arizona, started a pollinator garden in 2011. About 200 volunteers helped bring a barren patch of ground to life. They planted more than 500 plants! Since then, Anna's, Costa's, and black-chinned hummingbirds have all visited the garden. For hummers, the garden is a place to stop, rest, and feed. For human visitors, it's a place to see flowers and birds as well as get ideas for creating their own pollinator gardens.



Bruce Reid

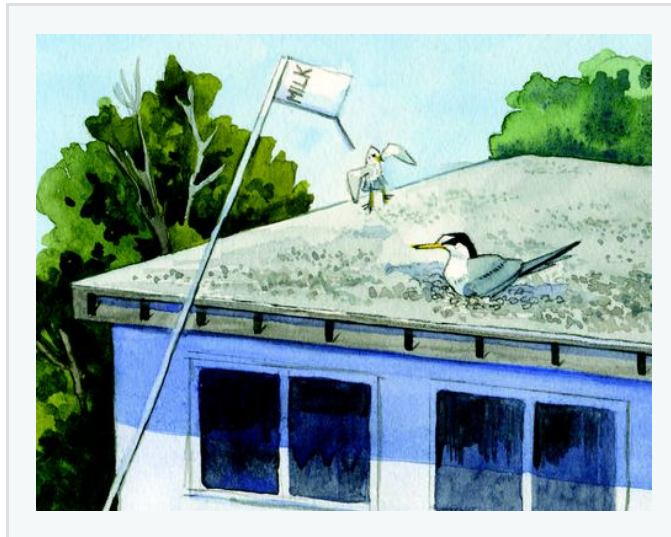
*Harry the Hummingbird greets visitors to the Strawberry Plains Audubon Center's Hummingbird Migration Celebration.*

Meanwhile, in the East, the Strawberry Plains Audubon Center in Holly Springs, Mississippi, hosts a festival every September celebrating the migration of ruby-throated hummingbirds. Visitors have the chance to see the amazing migrating hummers up close, go on nature walks and wagon rides, and learn about other animals, including snakes, bats, bears, wolves, and spiders.

# Checking on Seabird Chicks

This text is provided courtesy of the National Audubon Society.

Least terns are beach-nesting seabirds, and some of them nest along the coast of Florida. Florida's beaches have become very crowded, however, and lots of people walking and playing on the beach can disturb the nesting birds.



Sherrie York

*A least tern chick gets a boost back to its nest.*



Hilary Flower

*Nora Jade Flowers*

“So the terns have adapted to nesting on flat, gravel roof tops,” says Nora Jade Flower, 15, a volunteer bird steward in St. Petersburg. The problem with nesting on roofs is that many chicks end up falling off and wandering the parking lots below. “Chick-checkers walk around the buildings several times a day, searching for fallen chicks,” says Nora Jade. “If they are too young to fly back onto the roof, we lift them back on using a chickaboom.” That’s the contraption in the illustration. “A chickaboom is a long pole with a container on the end to hold the chicks. We lift them to the top, then we carefully let them fall onto the roof and rejoin the colony.”

# Jam Session

by Frances Killea



"Aren't you a little old to be playing make-believe?"

I, myself, had given up on play-acting when I was nine. It was kid's stuff, and I didn't feel very much like a kid anymore. My mother, however, seemed to have absorbed everything about childhood that I'd left behind. Now she was dancing around the living room with the handle of a dust mop in her hand, held at an angle like a rock star's microphone, singing.

When I said that, though, she stopped.

"Hey, Monica, you like movies, right? Some people make a living out of playing make-believe."

She wasn't wrong. I did like movies, and actors did make a living dressing up, and pretending they were someone else. The fact that Mom was right annoyed me. I didn't say anything, but picked up a stack of magazines that was on the kitchen floor, and put it on the table.

"Thanks, honey. I don't think this dust mop could handle those." Mom hummed a few lines of the music she had on.

I liked rock best, and she liked musicals. But today was *West Side Story*, which I loved. I'd caught my mother in the middle of a very animated version of the song "Maria."

"Also, Monica, we're going blueberry picking after I finish the kitchen," Mom said, without looking up from her pile of dust, which she was now sweeping into the dustpan.

"We're WHAT?" I had just finished putting all of the books on my bedroom floor back on my bookshelves.

Plus, I'd made my bed, and changed my hamster's water and food bowls. I was tired. "What am I? Slave labor?"

"Far from it. You're a lucky eleven-year-old girl who gets to be responsible for her very own bedroom in a safe house, in a safe neighborhood, in a free country. And you have the summer off, and a mom who is really good at making blueberry jam, but needs another set of hands."

I was about to protest, but she interrupted. "And you have full use of those hands. You're not sick or crippled-so be thankful for that. You are far, far from oppressed, my friend."

Mom dumped a pan of crumbs and dust into the trash. I stared at her. She was pretty awesome, most days. I really did love her. Still...dancing in the kitchen, pretending to be a star? *Blueberry picking?* She was known to sing out loud a lot. The berry-picking thing was new.

"Why don't we just go to the store?" I asked.

Mom threw a rag at me, and I automatically started wiping down the counters. "Because, number one, the berries there are shipped in from across the country, and they don't taste as fresh or as flavorful as the ones we can pick ourselves. And number two..." she paused to slam a drawer full of silverware shut, which just about broke my eardrums with clashing forks. "...it's fun."

So that was that. I grumbled my way through putting the clean dishes away, and then grumbled my way into the car, staying silent as we drove out east. It felt like forever. I had looked at the car clock when we left the house, and when we rolled up to the blueberry farm, it had only been half an hour. It's funny how quickly the scenery changed. We'd gone from our little town and neighborhood-not a city, by any stretch, but at least *populated*-to the country, where a house seemed surrounded by a mile of corn on every side.

My mother pointed to a small barn. The big sliding door was open, and inside was an old man standing hunched over a cash register. Mom went to speak to him as I rounded the back of the building to explore. I found a wooden table full of white buckets, a few empty wooden crates stacked near a coil of hose and a dog bowl filled with water. A bumblebee was struggling in the water, and I picked up a stick to help it out.

"Monica, grab a couple of buckets. Those are what we'll pick into." Mom came around the corner, and I reached for a pail from the stacks on the table.

"They're stuck," I huffed, wrestling with two that didn't want to come apart. "Help me!"

Mom grabbed the end of one, and I held the handle on the other; and we yanked. The buckets slid free, and I fell over from the force of the pull.

"Okay," I said, dusting myself off and frowning. We started walking past rows of blueberry bushes, a lot of them taller than Mom. "How do we do this?"

"Well, just like how you'd think," my mother replied. She ducked into the path between two rows of bushes, and I followed.



"Just go for the ones that are dark all around. Don't pick anything with white or pink on it. Those aren't ready yet, and they're going to be sour." Mom handed me an unripe berry.

"Duh, I know that, I've had blueberries before," I said, and didn't take it.

"Huh," Mom looked at me. "Not as sour as you, though, I bet." She turned away. "Let's divide and conquer, shall we? I'll pick here, and you can find your own row to work on, and we'll meet somewhere in the middle."

"Fine." I stomped away.

The grass itched my ankles. I wanted to sit down, but the sun was hot, and the shade under the bushes helped a little. So I found my own row, and started picking a short way into the patch. Almost immediately, reaching into the branches for a particularly juicy-looking berry, a yellowjacket stung my finger.

"OUCH!" I yelled. "STUPID BEE!" I swallowed to keep from crying. I listened, but didn't hear my mother reply to me.

She must not have heard. Or maybe she's ignoring me, I thought. My face felt hot, and I could feel anger bubbling up from my stomach to my chest. I kicked the near-empty pail by my feet, and screamed in frustration.

All I could hear in response were birds. I sniffed and wiped my eyes. My finger hurt, and it looked puffy. I picked up my bucket, and ran back up to where I thought my mom had been working. She wasn't there anymore. When I ran down the row calling out and looking for her, I saw no one, and heard nothing. I flipped the bucket upside down and sat on it, resting my face in my hands for a moment while I let a few tears slide down my nose.

There was nothing else to do but pick, I thought.

So I stood up, and walked a few rows back, parking myself next to a particularly tall blueberry shrub, making sure it was relatively bee-free. With both hands, I started yanking every ripe blueberry from the branches, fueled by anger. Gradually, though, I slowed down, feeling calmer as the sun shifted, and a breeze cooled off my shoulders.

"These are weird," I said to myself, looking at a handful of berries.

They were dusty-looking, like they'd been frosted. However, the dust rubbed off when I wiped them against my shirt. I'd never picked blueberries before; I'd actually never picked any berries before, and being out there was annoyingly hot and full of bugs. But I was beginning to relax. I caught myself humming one of the songs from the soundtrack my mother had been listening to that morning, and made myself stop.

I moved to the next bush, and started on that one. Shortly after, I walked to another, and then another; picking a handful of fruit from each before looking for new territory. My bucket was only a third of-the-way full, and my finger was hot and red, but I had to admit, I was having fun.

I didn't hear my mother when she walked up. I had filled my bucket another third of-the-way to the top, and I was singing and dancing in place under the branches.

"Who's making-believe now?" My mom laughed.

I was embarrassed. "Yeah...but I'm eleven. I'm allowed to do this."

"Newsflash, honey: people never get too old to pretend."

"I got stung," I said, and suddenly needed a hug. I almost tipped over my harvest, but jumped over it before kicking the pail.

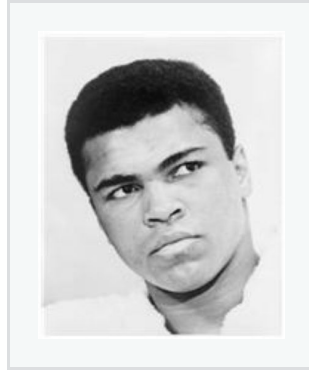
Mom set hers down and hugged me back. "Let's head home, shall we?"

We paid for our berries by weight. Mom got me a can of Coke from a rickety, old machine in the barn, which I put on my finger before I popped the tab. We shared it in the car on the way home.

When we got back, Mom gave me some first-aid cream for my sting, and I curled up on the living room couch with a book. I don't remember which song exactly, because I was drifting in and out of a nap, but I heard my mom singing along to *West Side Story* again. Only this time, it made me smile, and when I woke up, there were five jars of jam on the counter, and the house smelled like vanilla, sugar, and fruit.

# Famous African Americans – Muhammad Ali: The Greatest

By ReadWorks



In 1942, Cassius Clay, Jr., was born in Louisville, Kentucky. In 1960, during the Summer Olympics, Clay won a gold medal in boxing. Four years later, in 1964, he won his first world heavyweight boxing title. The same year, he changed his name to Muhammad Ali. He later converted to Islam.

Muhammad Ali was the greatest boxer of his time — and he knew it. In fact, he called himself “The Greatest.” By the time he retired in 1981, he had a career record of 56 wins, five losses, and 37 knockouts.

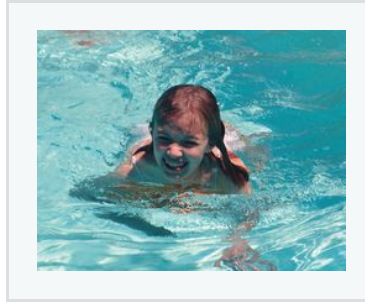
In 1984, Muhammad Ali found out that he had Parkinson’s disease. It is a disease that affects the brain. The disease made it difficult for him to speak or use his body. After the terrorist attacks of September 11, 2001, he put these difficulties aside. Ali addressed the United States. He talked about his faith. He urged America not to look down on Muslim people because of the attacks. He thought it was important to speak out. Many people admired his courage. In 2005, Ali was honored with the Presidential Medal of Freedom for his role in working for equality and civil rights.

In 2016, Muhammad Ali died at the age of 74. He was known not just for his faith and his boxing. His courage, his way of speaking, and his desire to help others also made him famous.

# SummerReads: Swimming - Different Swimming Strokes

By Andrew Funk

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*A young swimmer practices the dog paddle in a pool near San Diego, California, April 2010.*

Whether they are young or old, new swimmers usually start out with the same swimming stroke that dogs use when they swim. This stroke is called the dog paddle. It's easy to learn to dog paddle but dog paddling isn't very fast.

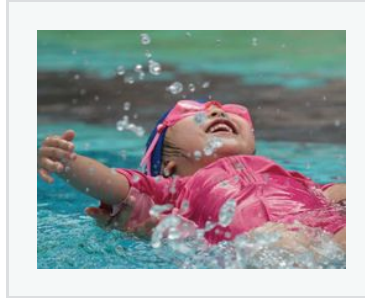
Most swimmers learn the breaststroke next. The breaststroke begins by lying in the water with your front side down. You move both arms in a circle. You raise your head out of the water to breathe once during each stroke. You also need to kick your legs in a circular motion like a frog's kick. The fastest swimmers use a stroke called the front crawl. To do this stroke, you lie face down in the water. You move your arms like a windmill. At the same time, you move your legs up and down like scissors. Since your face is in the water, you have to turn your head to the side every two or three strokes to breathe.

There are other swimming strokes. An example of another stroke is the backstroke or back crawl. As you can tell from the name, this stroke is like the front crawl except that you lie on your back. A good thing about a backstroke is that your face is out of the water. That means that breathing is not a problem. But there's another problem. You can't see where you are going! Choose your strokes with care!

# SummerReads: Swimming – Swimwear

By Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.



© 2006 by Tommy Wong.

*A young girl wears goggles while learning the backstroke near Tai Po, Hong Kong, May 2006.*

The clothes worn by swimmers have changed a great deal over time. About 200 years ago, women wore dresses made of wool to swim. Wool absorbs water. That meant that the dresses got heavy in the water, making it hard for women to swim and not sink.

Today, a swimming suit is made to fit the body snugly. A snug fit allows a swimmer to glide through the water. The suit is made of cloth that does not absorb water. Because the suit doesn't absorb water, the swimmer is carrying less weight and can move faster.

Another big change in swimwear is the wetsuit. A wetsuit covers almost the entire body with a close-fitting layer of special rubber. The rubber has very small bubbles of gas that make the suit lighter and better at keeping the body warm. A thin layer of water gets trapped between a person's skin and the inside of the suit. The body warms this small amount of water. Since the water can't get out, it helps to keep the body warm. A wetsuit makes it possible to swim and surf even in places where the water is cold. Goggles are another addition to swimwear. Salt from ocean water or chemicals in swimming pools can hurt your eyes. By wearing goggles, swimmers can keep the salt and chemicals out of their eyes. Swimmers who want to keep salt and chemicals away from their noses can wear masks.

# SummerReads: Swimming – Swimming Underwater

By Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.



Taken by Dr. Louis M. Herman.  
Released into the public domain by  
NOAA.

*Humpback whales (Megaptera  
novaeangliae) near Maui, Hawaii.*

Humans can swim under water but only for short periods of time. After about two minutes, a human needs to return to the surface to get oxygen from the air.

There are animals that, like humans, use lungs for breathing. Some of these animals are much better underwater swimmers than humans. Whales can stay underwater for up to two hours without coming to the surface for air. Birds also have lungs and many can stay underwater much longer than humans.

The best underwater swimmers are fish. Unlike humans, most fish breathe through gills that allow them to get oxygen from the water. Since they do not have to come to the surface, fish are excellent swimmers. Some fish can reach speeds of more than 40 miles per hour.

Almost all animals are born with either gills or lungs and have one or the other for their entire lives. But some animals are born with gills and then switch to lungs later in life. This means that they live in water for the first part of life and, later, breathe air and live on land. Frogs are an example of such animals. Frogs start out as eggs in the water. When the eggs hatch, tadpoles that breathe with gills come out. Later, tadpoles become frogs and the gills are gone. Frogs use lungs for breathing. Tadpoles can stay underwater but frogs can't. Frogs need to come to the water's surface to breathe.



# SummerReads: Bikes & Boards – Bicycles

By Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.



© 2007 by Dave Hogg.

*Riders demonstrate old-style bicycles at Greenfield Village in Dearborn, Michigan, August 2007.*

The first bicycles did not look like the bicycles of today. Their frames and wheel rims were made of wood or solid metal that made them heavy and hard to ride. One of the early bicycles had a very big wheel in front and a very small wheel in back. People in England named it the penny-farthing because it reminded them of two English coins. The penny was a big coin and the farthing a tiny coin.

The pedals on a penny-farthing were joined to the hub of the big front wheel. That meant that the rider had to sit almost on top of the front wheel to reach the pedals. A bump on the road could send a rider flying over the front of the bicycle. Many riders got hurt and even died. These bicycles were just for adults, usually men.

A little over 100 years ago, three inventions led to bicycles like those of today. First, the use of chains and gears meant that pedals could be joined to the frame rather than to the wheel. Wheels could now be the same size and riders could be seated lower and further back on the bicycle.

The second invention was a way of treating rubber. This made it possible to have air-filled rubber tires. Air-filled rubber tires made a smooth ride, unlike that on wooden or metal tires.

Third, the invention of hollow, metal frames meant that bicycles were no longer as heavy. These changes made bicycles safer and easier to ride. Now bicycles could be for everyone—men, women and children.

# SummerReads: Bikes & Boards – Catch a Wave

By Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.



© 2007 by Mike Baird.

*Father and son surf lesson at Morro Bay, California, December 2007.*

Almost 250 years ago, the first Europeans who visited islands in the Pacific Ocean saw local islanders riding on waves. The riders started from shore with a wooden board. They used the board to paddle out into the ocean. When they got past the point where the waves were breaking, they turned and faced the shore. Then, they lay on the board and paddled toward shore. When a wave broke, they stopped paddling and let the board move with the wave. At this point, some riders got to their feet and stood for the rest of the ride. When the wave died away, the board stopped moving. Riders would then turn their boards, paddle back out into the ocean, and begin all over again. Because this action took place in the ocean surf, the activity became known as surfing.

People know about surfing around the world but that doesn't mean that people can surf everywhere. The waves have to be the right size. The breaking wave has to be big enough to support a surfer on a board. The wave also has to be long enough so that the surfer can ride it for some distance. Big, long waves are rare in the freshwater of most lakes. That means that almost all surfing happens in the saltwater of oceans.

The best waves for surfing also depend on the slope and shape of the ocean floor next to the beach and on wind patterns. In the United States, the best surfing places are in Hawaii, California, and Florida.

# SummerReads: Bikes & Boards – Sidewalk Surfing

By Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.



© 2006 by Jon Hansen.

*Photo: A skateboard competitor performs a jump at the Sprite Urban Games in London, England, July 2006.*

No one knows exactly who had the idea of putting wheels on a board and going for a ride on it. It is known that it was surfers who first rode skateboards. They called it “sidewalk surfing.”

Skateboarding became popular in the 1970s. During that time, California had a serious lack of water. Many people took the water out of their swimming pools. The dry pools were deep enough so that skateboarders could do aerial tricks in them. But the steep, straight walls of the pools led to many injuries.

Skateboarders began hearing about huge water pipes that were not in use. The curved sides of the pipes made it possible to still perform aerial tricks but did not lead to as many injuries. People began to build similar shapes out of wood and called them half-pipes.

Early skateboards were flat and thick like small surfboards. They had wheels made of clay or rubber that did not grip the riding surface well. Once clay and rubber were replaced with plastic wheels, skating became very popular. Skateboards are still usually made of wood. But now the nose and tail of skateboards have small rises. By stepping quickly on one or other of the rises, a skater can control the board during jumps and tricks.

One reason for the popularity of skateboarding is that many different tricks can be performed with a skateboard. The most basic trick is called the “ollie,” named after Alan “Ollie” Gelfand who first performed it. The skater kicks down on the tail of the board and jumps up at the same time. It looks like the board is flying in the air.

# Keep Looking

by ReadWorks



By the time they parked, paid the station meter, bought their train tickets, and stepped onto the long silver train, it was 10:24 a.m. Luckily the second car was almost empty. They plopped down into the cool maroon and navy leather seat, happy they had made it.

Just as Netty's mom let out a sigh of relief, a bell, sounding like an old telephone, rang for a few seconds solid. The train jerked backwards, then jolted forward towards New York City. In a few hours they would be home with Daddy and their pup!

The last three days had been filled from morning to night with people speaking about math. Her mom had taken Netty upstate to the Hudson Valley for a big meeting with math teachers from all over the country. The math teachers were meeting to share their teaching styles and learn from each other, like a huge, math-y show-and-tell.

Netty's mother was very popular at the meeting. People were very excited to meet her and seemed to know a lot about the beautiful shapes she made using a special kind of math called "geometry." Netty's mother made big, colorful stars with lots of points out of paper or metal. Some of her shapes even looked like gigantic snowflakes. Many of them were on display at the meeting. Netty loved seeing the crowds of math teachers looking amazed and talking excitedly about her mother's stars.

The math meeting had been fun, but as the train rolled them smoothly towards home, Netty felt glad it was over. Also, the train ride was a great way to see the countryside. It had big windows and moved slow enough so that things weren't too blurry.

They had traveled to the meeting at night, so Netty hadn't noticed all the tree-covered mountains, little lakes with lily pads, and streams flowing with fresh water. It was so nice to look out at all the scenery passing by like a movie in the quiet train car and not hear anything about math. At least for a little while!

Then the train conductor made his entrance. He wore a sturdy, blue uniform, a punchy hip-pack around his waist, and the special black-brimmed hat with red stripes all conductors wear. He was definitely older than Netty's mom, but not yet an old man. Netty liked the way he smiled as he spoke. It felt like he was a stand-up comedian whose act was divided into personal one-minute episodes for each customer as he collected his or her tickets.

As he clicked the riders' tickets he made small talk with each of the passengers. Some of them must have known him, since he greeted them by name and asked them about their work or families. Every once in a while he sang out the snippet of a song as he clipped ticket after ticket.

He even quacked at one of the passengers.

"How are you?" she'd asked him.

"*Quack, quack!*" he'd replied. "Just okay, I'm not going to lie too much to you. *Quack!*"

"I feel about the same," she confessed.

"I have to watch out. As a duck I don't want to get cooked. Don't want to be somebody's Peking Duck, if you know what I mean. *Quack!* Don't want to end up roasted."

"I hear ya," the woman agreed.

Netty hoped the funny conductor didn't get roasted either. Netty's mother had a rule against eating duck anyhow. She always said they were such sweet animals that they didn't deserve to be eaten. Netty agreed with her mother.

When the conductor waddled over to take their tickets, though, he must have no longer felt like a duck. He didn't quack once at Netty or her mother.

Instead he took one look at Netty's widening eyes and asked, "Do you like big birds?"



Netty nodded yes.

"Well, have you ever seen a blue heron?"

Netty shook her head no.

"Oh, you're in for a treat, my friend," he sang.

Then he whistled, "They're kind of like a pelican or stork minus all the white."

Then he pointed out the window, his own eyes widening as he looked into the passing trees.

"Just keep looking out there about ten feet up into the trees. That's where they build their nests-up high where no one can touch them."

Netty and her mom looked out, almost expecting to see nests everywhere among the trees. After a few minutes of searching the branches together they still didn't see anything, though. All they saw were the trees themselves, growing higher than some city buildings out of a patch of swampy waters.

The conductor said, "Keep looking. They're out there."

That was the end of his routine with them, so he made his exit into the neighboring car to entertain more passengers.

While Netty kept searching the woods for a blue heron, her mother took out a camera in case they did actually see something. She had only just removed the lens cover when Netty saw it.

"Look!" Netty cried, pointing up at a large nest, high up on an approaching tree.

As it came closer, Netty saw the nest, and in it the largest, most beautiful bird she had ever seen. Its beak was slender and long, its body lean and covered in a shiny brown, grey, and blue coat of feathers.

It stared at them as the train passed by. Netty felt as if it was staring right at her. Maybe it was. Maybe it thought the train was some kind of nest on wheels and Netty some kind of freshly hatched chick whose mother fed her math instead of worms.

Netty's mother instantly flipped on her camera and started snapping. *Click! Click! Click!* went her shutter as the proud mama bird guarding her nest floated out of sight.

"I think I got one with you both!" Netty's mother crowed with her own pride.



"We'll see," she concluded, returning her camera to its bag.

Soon the green countryside gave way to more and more houses, followed by bigger and bigger buildings.

They briefly glimpsed Manhattan's mammoth skyline before the train dove underground towards its final stop. They reached Grand Central Station in New York and then transferred to a subway train that took them to their neighborhood in Brooklyn. When they climbed to street level at their stop, Netty's Dad and pup were both right there, waiting in their car to pick them up.

They all hugged, so happy to be together again. Then they went home for lunch, where Netty's mother made fresh lemonade and sandwiches for everyone.

The following week Netty came home from school one afternoon and found an envelope sitting next to her bed. She opened it to discover a stunning photograph of Netty and the blue heron. Her mother had gotten one!

In the picture you could see the amazement in Netty's profile looking out the train's window at the enormous mother bird sitting elegantly on her nest in the background.

Netty bolted to show her father.

Climbing up the stairs, she burst out with delight, "Daddy, have you ever seen a blue heron?!"